COURSE PLANS

UNIT 7

1. BASIS

This unit is mainly descriptive but several experiments are suggested that can be done in the classroom using common tools and materials. Pupils should understand that science is constantly evolving and changing, and that scientific knowledge improves our quality of life and, helps us to have a better understanding of the world around us. In this unit we will learn about matter, its states and general properties; mass and volume, and the instruments and units used to measure them; the specific properties of matter in solids, liquids and gases; density as a specific property that allows us to distinguish between substances, pure substances and mixtures and how we use matter. The projects discuss designing objects and choosing appropriate materials.

April ☐☐☐☐

2. METHODOLOGY

As students progress through the unit they will be able to define matter and know how its general properties are measured; define density; distinguish pure substances and mixtures; differentiate between natural materials and man-made materials; apply mathematical and strategies for measuring mass, volume and density.

CONTENTS	EVALUATION CRITERIA	LEARNING STANDARDS
• Matter and its different states. • General properties of matter. • Units and procedures to find out the mass and volume of solids and liquids. • Specific properties associated with the states of matter. • A very important specific property: density. How to calculate density. • Pure substances and mixtures. • Types of mixtures. • Natural materials, modifications and use. • Man-made materials, production and use. • Identification of materials, their origin and the properties that make them suitable for certain uses. • Understanding information, learning vocabulary, using language as a tool for communication and keeping a positive attitude towards reading. • Knowledge of and use of mathematical operations and mathematical strategies to resolve problems. • Understanding social reality and showing	1. Learning about matter, its different states, specific and general properties, and some procedures and units of measurement.	1.1. Identify and name the states in which matter is found, define mass and volume of an object, and describe methods and units of measurement. 1.2. Describe and name specific properties of matter associated with its states.
	2. Define and calculate the density of a body or substance.	2.1. Define the density of a body or substance and apply procedures to calculate density.
	3. Distinguish pure substances and mixtures and learn about different types of mixtures.	3.1. Define *pure substances* and *mixtures.* Name different types of mixture and identify mixtures found in the immediate environment, especially different solutions. Define alloy and know the names and compositions of some alloys.
	4. Find out about different materials, both natural and man-made, their origins, the products obtained from them, and their use in human activities.	4.1. Name different natural and man-made materials, the differences between them, and describe their origins and name the products obtained from them and their uses.
	5. Develop curiosity about the physical world and actively participate in group projects.	5.1. Be aware of the phases of a project based on the properties of materials and their suitability for specific uses. 5.2. Observe a painting *(The Harvest)* and identify natural and man-made materials and create their own landscape painting.
	6. Understand information, acquire vocabulary about	6.1. Understand information, acquire vocabulary about matter, express knowledge

respect towards society and nature. • Knowledge and responsible use of ICT to investigate matter. • Using strategies to process information and applying it to different contexts. • Initiative and perseverance in tackling problems and defending opinions, developing attitudes of respect and collaboration when working in a group.	matter, express knowledge and opinions both orally and in writing and show interest in reading texts and exploring to discover more about matter.	and opinions both orally and in writing and show interest in reading texts about matter.
	7. Know about and apply mathematical elements and strategies for measuring mass, volume.	7.1. Know about and apply mathematical elements and strategies for measuring mass, volume and density.
	8. Know and use ICT in a responsible way and use strategies to process information and apply it to different contexts, actively participating in their own learning process.	8.1. Obtain and organise information, working with the unit structure, and using digital resources with interest and responsibility.
	9. Show initiative and perseverance in tackling problems and defending opinions, developing attitudes of respect and collaboration when working together in a group.	9.1. Show initiative, accept mistakes when doing self-evaluation, persevere in reinforcement tasks and actively participate in cooperative learning exercises.

3. COMPETENCIES

COMPETENCIES	CONTENTS AND ACTIVITIES BY COMPETENCY
Linguistic competency.	Reading and listening to different types of texts creatively with literary sense. Reading the initial reading and the recommended texts in the reading plan.
Mathematical competency and basic competencies in Science and Technology.	Accurately identifying and using mathematical elements (numbers, data, geometric elements ...) in everyday situations. Calculating the mass of a substance using data for density and volume.
Digital competency.	Using different sources to look for information. Looking for information about the density of certain types of wood.
Learning to learn.	Identifying personal potential as a learner: learning styles, multiple intelligences, executive functions ... Recognising the possibility of obtaining or deducing information from the data obtained in the experiments. *Multiple Intelligences:* Carrying out experiments in a group with materials and substances in the laboratory to develop different multiple intelligences, especially logical-mathematical and natural and scientific intelligences.
Social and Civic competencies.	Helping classmates to make sure the measurements of mass are correct, but not taking over the task for them. *Values:* Learning to behave correctly according to different values. Taking proper care of the laboratory materials.
Sense of initiative and entrepreneurial spirit.	Sharing the results of an experiment with classmates.
Cultural awareness and expression	Developing work and presentations with aesthetic sense. Creating a landscape painting with features representing both natural and man-made materials.